

Training Manual

SpectraPoint™ SP2200 System
Provisioning

Issue 1

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Part No. 3215397 P



SpectraPoint™ LMDS

Local Multipoint Distribution Services

Preface

To the student

This manual is written as a basic text for understanding the SP2200 system. It is intended for individuals who will install, operate, and maintain the SpectraPoint™ SP2200 Base Station.

Conventions

The following textual convention is used in this manual:

Note: This is used for clarification of any topic being covered. Note is bolded, followed by a colon, and the note text is *italicized*.

Attention: This is used when something that affects proper operation needs to be stresses. Attention is bolded, followed by a colon, and the attention text is *italicized*.

Warning: This is used when some equipment or procedure can cause bodily harm or death if used or applied incorrectly. Warning is bolded, followed by a colon, and the warning text is *italicized*.

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Training Manual

SP2200 System Provisioning

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1	SP2200 Provisioning Class Introduction
2	CID and SpectraPRO General Description
3	Getting Started
4	Turning Up a Base Station
5	Provisioning BCG Services
6	SP2200 BCG Operation Manual (Preliminary)
7	Troubleshooting Information



Class Introduction

Overview

This course is designed to give the student an introduction to the provisioning and operation of the SP2200 LMDS System.

Course Objectives

Given the necessary documentation and equipment, upon completion of this course, the student will be able to discuss key features of:

- Craft Interface Device (CID)
- SpectraPRO

Slide 1-1

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SP2200 CPE Class Introduction

This training document describes the provisioning and operation of the **SpectraPoint™** SP2200 System. See slides 1-1 and 1-2 for the course objectives.



Class Introduction

Course Objectives, continued

Given the necessary documentation and equipment, upon completion of this course, the student will understand the procedures needed and be able to:

- Load SpectraPRO on the CID
- Connect the CID to a 2200
- Log into the 2200 system
- Provision a new SP2200 system using the CID
 - Turn up a new Base Station
 - Provision BCG service for subscribers

Slide 1-2

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Class Introduction

See slide 1-2 for details.



Course Introduction

- Class Introductions
- Daily Schedule
- Logistics
- Course Topics

Slide 1-3

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Course Introduction

See slide 1-3 for details.



Course Topics

- General Description
 - Craft Interface Device
 - SpectraPRO
- How to get started using SpectraPRO
- Turning up a new Base Station
- Provisioning BCG services

Slide 1-4

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Course topics

The course topics are shown in slide 1-4. The training manual is organized into sections to cover each of these topics.



CID and SpectraPRO General Description

Objective

Upon completion of this section, the student will be able to describe the uses of CID and SpectraPRO. In addition, the student will be able to discuss common screen features of SpectraPRO.

Slide 2-1

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CID and SpectraPRO General Description

See slide 2-1 for section objectives. This section provides a general description of the Craft Interface Device (CID) and SpectraPRO software. **Note:** *A hard copy of the Operation section of the BCG equipment manual can be found in section 6 of this training manual. It contains detailed information about using the CID and SpectraPRO; the information in this section is based on that document.*



CID Overview

- Craft Interface Device (CID) is a PC running SpectraPRO software
- PC may be desktop or laptop, and platform needed is Windows 98® or NT
- Normally connected directly to BCG
 - Ethernet or RS-232
 - Remote connection using a dial-up modem
- SP2200 system software may be downloaded using the CID

Slide 2-2

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Craft Interface Device (CID) Overview

See slide 2-2 for details.

CID specifications

The CID specifications from the Operation document are shown in the chart below.

Requirement	Minimum Specification
Operating System	Windows 98 or NT4 with Service Pack 4
Clock Speed	133 MHz (laptop)
RAM	64MB
Video Resolution	800x600 color; 768x1024 or higher, strongly recommended
Hard Drive	50 MB free space
Removable Storage	CD-ROM, Floppy (on a docking bay for the laptop)
Ports	1 ea. RS-232, 1 ea. Ethernet (with 10Base-T adaptor)



SpectraPRO Overview

- SpectraPRO software on the CID is used for initialization of SP2200 systems.
- SpectraPRO provides access to device controllers
 - Provides device control/configuration and software download functions
 - Initial turn-up of BCGs
 - Channel group re-provisioning, such as add/change/move services
 - Local monitoring and troubleshooting
 - Can also function remotely over a network

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SpectraPRO Overview

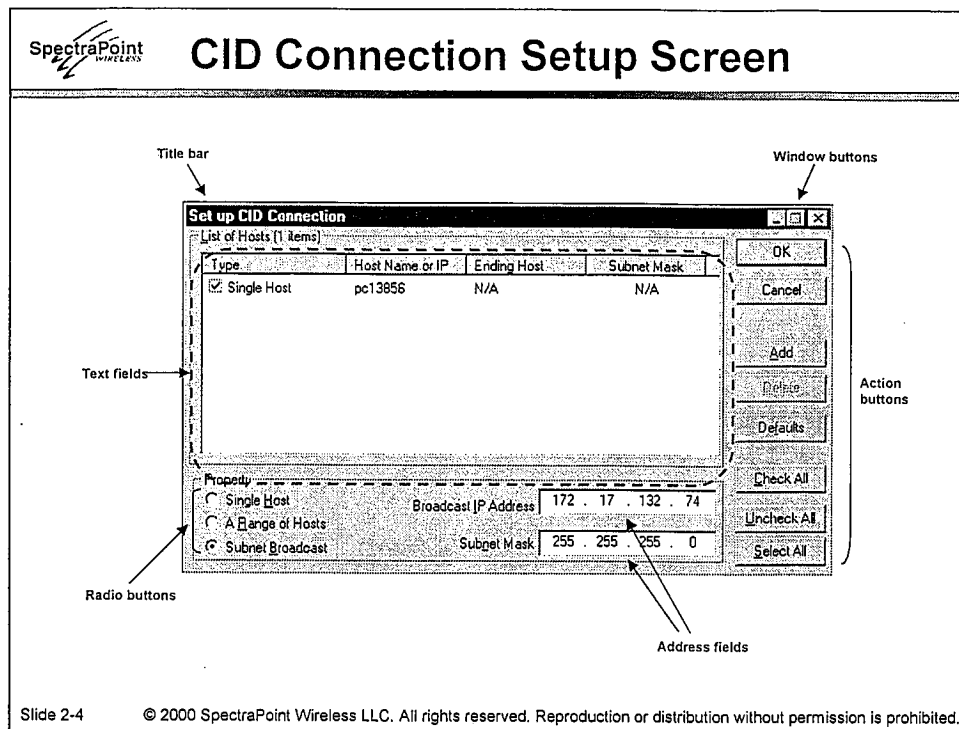
See slide 2-3 for details. Once connected to a BCG, SpectraPRO users can see all the BCGs in the local domain (Node). It can control the BCG that it is logged into and the BCG's related devices, including multiple NIU installations.

Attention: *A restriction of the CID using SpectraPRO is that it can communicate with only one BCG at a time.*

A copy of SpectraPRO (on CD) is shipped with each Base Station deployment; a copy will also be furnished to each student attending this training class.

Common Screen Features

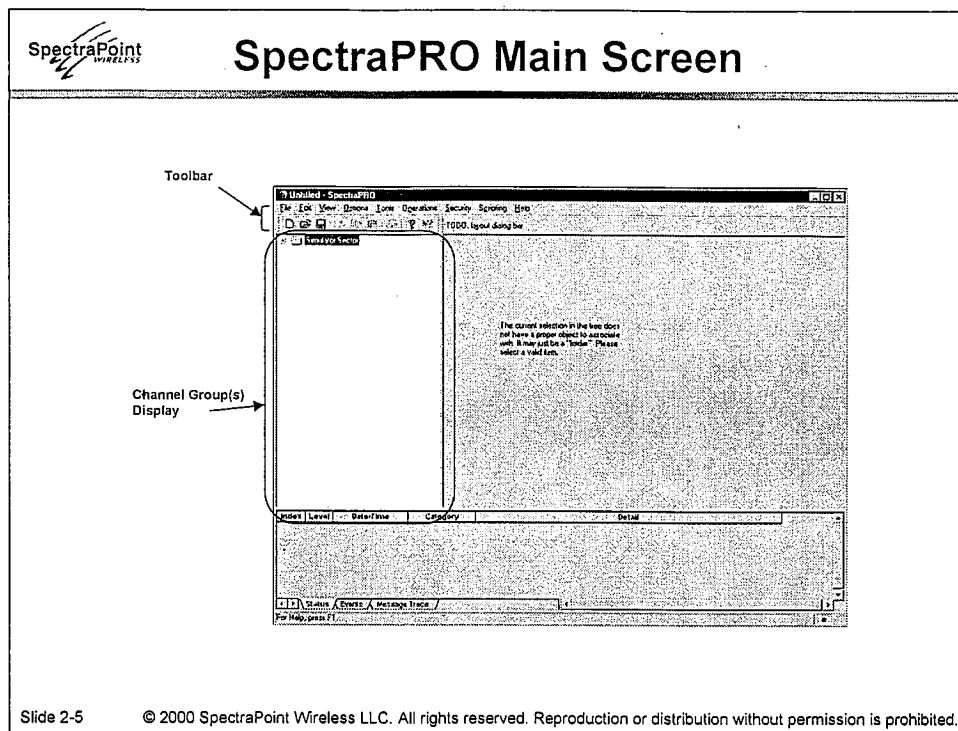
Most SpectraPRO screens share common features. These are illustrated on pages 2-4 through 2-7.



CID Connection Screen

Shown in slide 2-4 is the CID Connection Setup screen. SpectraPRO common features are noted in the slide and detailed below.

- **Title bar** - this bar is along the top of the screen and typically indicates the title of the selected screen.
- **Window buttons** - allow the user to minimize, maximize or close the selected window.
- **Radio buttons** - allow the user to make a choice regarding some parameter.
- **Action buttons** - allow the user to perform an action on parameters in the screen.
- **Text fields** - display information pertinent to the selected screen.



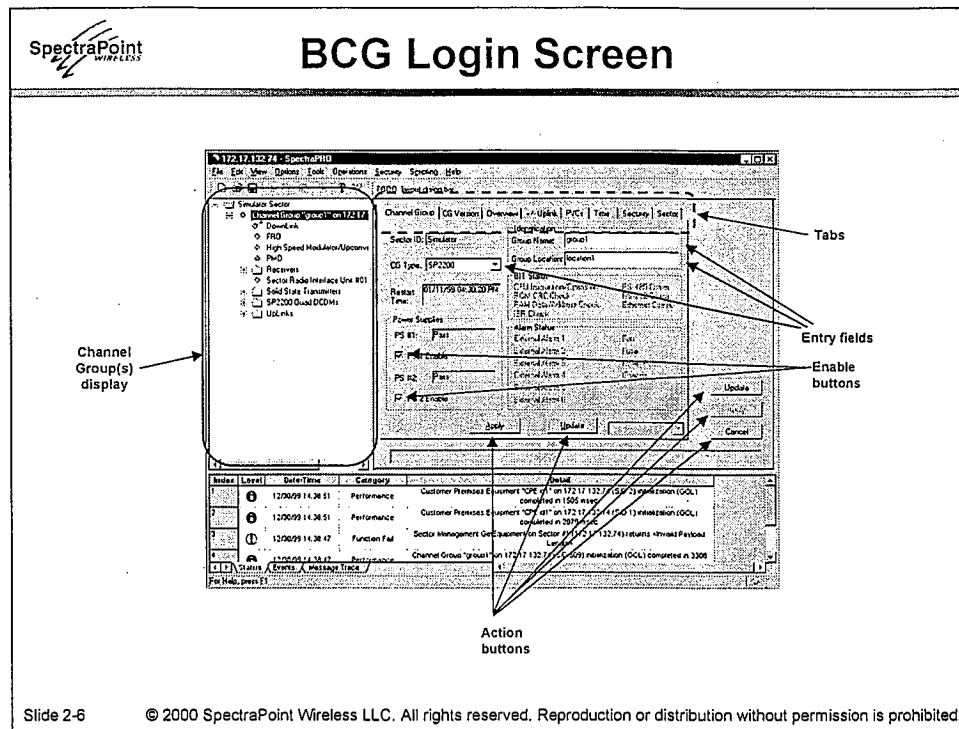
SpectraPRO Main Screen

Slide 2-5 shows the SpectraPRO Main screen, which is the starting point for logging into a BCG. SpectraPRO common features are noted in the slide and detailed below.

Attention: Beginning with this screen and included in most other screens is the comprehensive on-line Help guide to all screens and terms. It can be accessed by clicking on Help in the toolbar or by pressing the F1 key on the keyboard.

Common items on this screen that will be seen on other screens:

- **Toolbar** - Shows available tools that can be used with the screen. On this screen, this includes File, Edit, View, Options, Tools, Security, Scripting, Help
- **Channel Group(s) display** - Shows BCGs that are recognized from IP addresses or SubNet addresses entered on the Connection Screen. May also show the Channel Group equipment for the selected Channel Group as shown in slide 3-4.

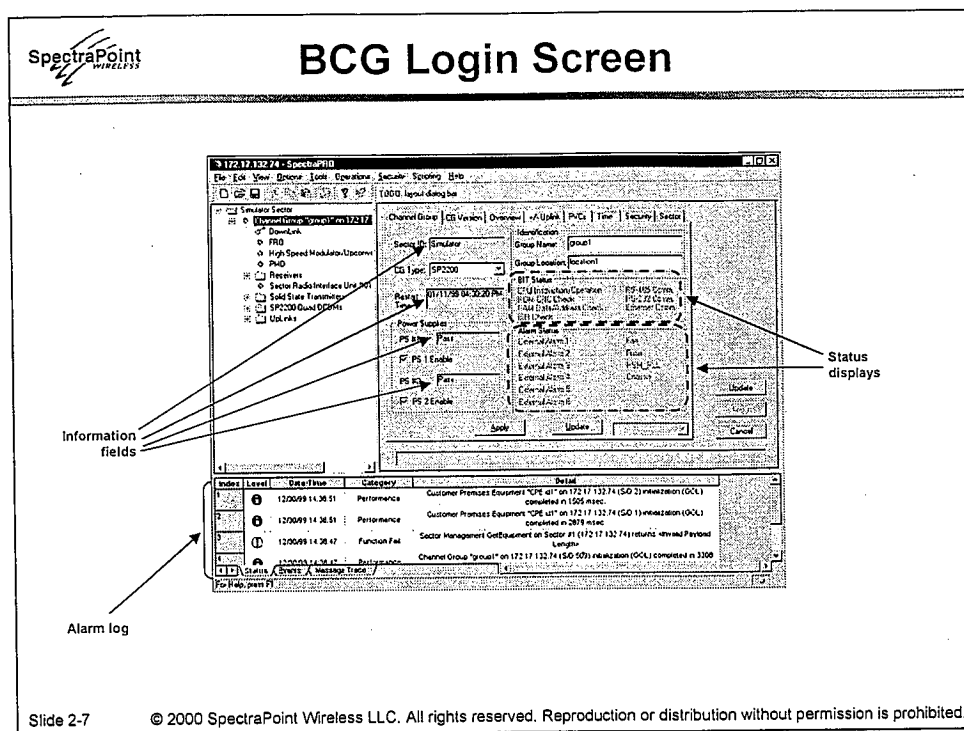


BCG Login Screen

Shown in slide 2-6 is the BCG Login screen. SpectraPRO common features are noted in the slide and detailed below.

- **Tabs** - selection of a tab will bring up a window for different areas of the selected item, whether it is a Channel Group, FRO, HSM, etc. Shown in slide 3-4 is a Channel Group Tab display.
- **Enable buttons** - allow enabling (or disabling) of system component, shown in slide 3-4 are BCG power supplies.
- **Entry fields** - allow parameters to be entered for the selected item, shown in slide 3-4 is a Channel Group.
- **Action Buttons** - as indicated on page 3-2, allow the user to perform an action on parameters in the screen.

Attention: Some buttons are will not be active until changes or updates are applied to the selected object. Active buttons will appear dark gray or black, and inactive buttons will be "washed out" until needed.



BCG Login Screen, continued

Common screen items shown in slide 2-7 cannot be changed, and simply provide information or parameters for the selected object.

Attention: *These cannot be changed by the user in the selected screen.*

- **Information fields** - the background of the field is gray, and only show information about the selected object.
- **Status displays** - display BIT and Alarm status information about the selected object. A BIT or Alarm display will be illuminated.
- **Alarm log** - this is common to all screens and shows the latest system alarms. The latest alarm is always on top of the scroll.

Remember - During any session with any BCG, the user can access Help information in two ways:

- ⇒ Selecting **Help** from the toolbar at the top of the screen, or
- ⇒ By pressing the **F1** key on your keyboard.



Review Questions

- (1) A PC running SpectraPRO software is called a ____.
- (2) What platform is required for running SpectraPRO?
- (3) The CID can have multiple BCG sessions running at one time. True or False?
- (4) Can SP2200 system software be downloaded from the CID?
- (5) How does a SpectraPRO user get a Help guide?

Slide 2-8

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Review Questions

See slide 2-8 for end-of-section review questions.



Getting Started

Objective

Upon completion of this section, the student will be able to get started using the CID:


- Load SpectraPRO on the CID
- Connect the CID to a BCG
- Bring up SpectraPRO
- Log into a BCG using the CID

Slide 3-1

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Getting Started

See slide 3-1 for section objectives. **Note:** *A hard copy of the Operation section of the BCG equipment manual can be found in section 6 of this training manual. It contains detailed information about using the CID running SpectraPRO and will be used as the reference during the hands-on lab exercises.*



Three Steps

- Installing SpectraPRO software
- Connecting the CID to the BCG
- Bringing Up SpectraPRO

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Three Steps

As shown in slide 3-2, there are three steps in getting started using SpectraPRO:

- | | |
|----------------------------------|-----------------|
| • Installing SpectraPRO software | page 3-3 |
| • Connecting the CID to the BCG | page 3-4 |
| • Bringing up SpectraPRO | pages 3-5 & 3-6 |



Installing SpectraPRO Software

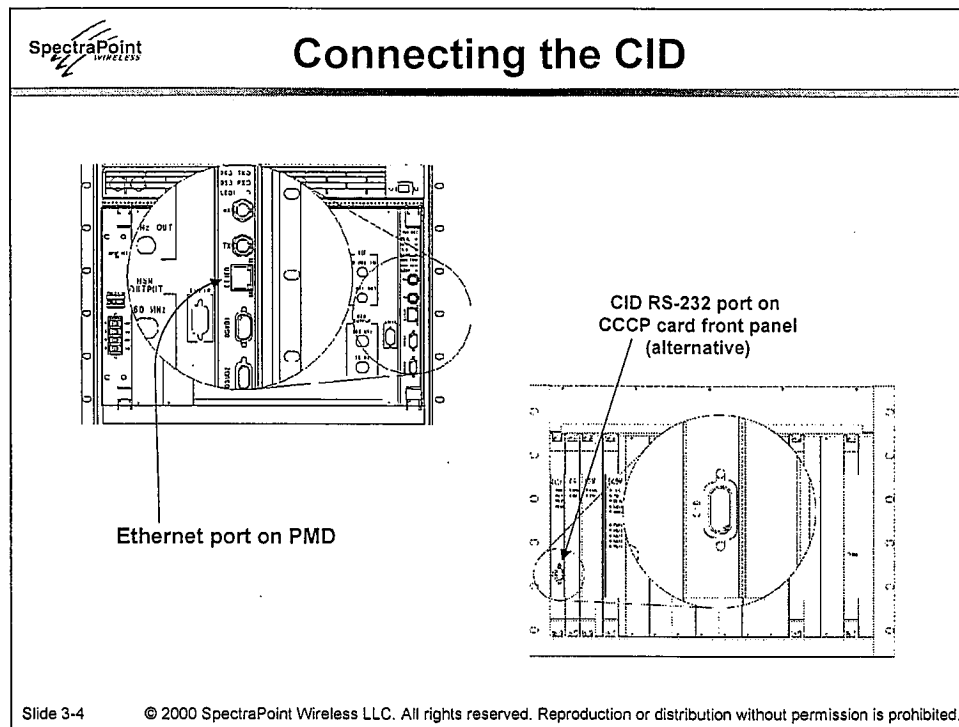
- Insert the CD-ROM in the PC's CD device (reader or writer)
- Double-click on the icon for the CD drive
- Locate and double-click on the .exe file
- Follow the instructions on the screen to load SpectraPRO on the PC and set up display options

Slide 3-3

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Installing SpectraPRO Software

See slide 3-3 for details.



Connecting the CID

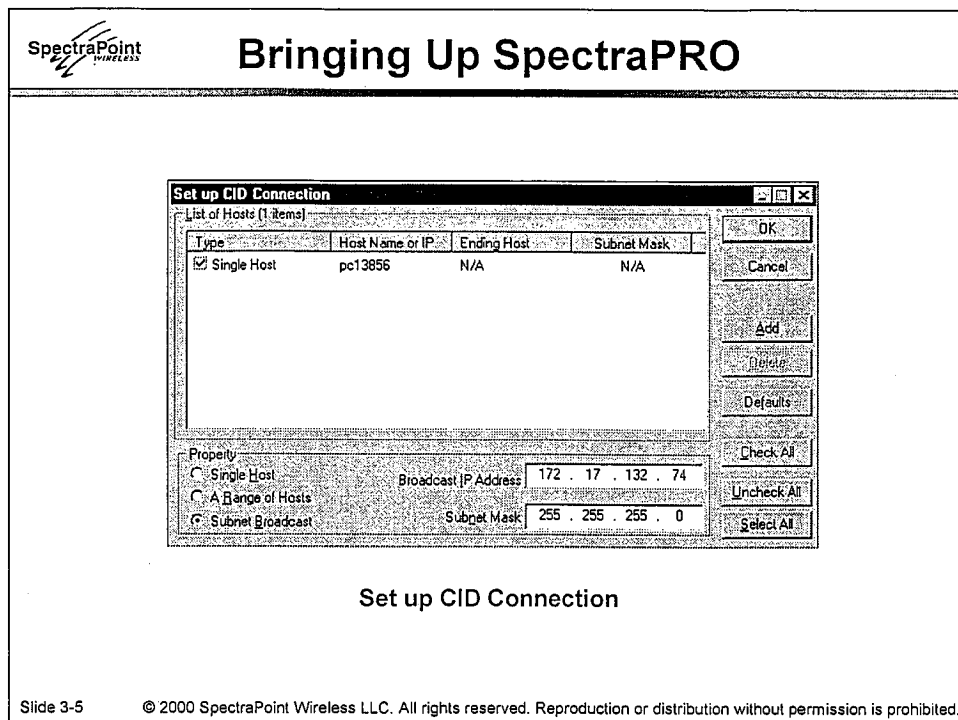
The BCG is the primary point for setting SP2200 system parameters, and the provisioning steps shown in this section require connection to a BCG.

Steps

1. Connect an 8-wire cable from the PC's Ethernet port into the Ethernet port on the PMD (at the rear of the BCG shelf), as shown in slide 3-4. **Note:** If the BCG Ethernet port is occupied, you may plug into a nearby Ethernet hub (customer-owned) on the same LAN.

2. An RS-232 port is provided on the front of the CACP card as an alternative connection point for the CID, also shown in slide 3-4.

Note: Either connection may be used; however, the Ethernet connection provides faster response times.



Bringing Up SpectraPRO

The user can bring up SpectraPRO from the Start menu or by double-clicking its icon on the desktop, as appropriate. The 'Set up CID Connection' dialog window will appear, as shown in slide 3-5.

Steps

1. If the desired IP address of the Base Channel Group (BCG) appears in the List of Hosts, skip to Step 3.
2. If the desired IP address of the BCG does not appear in the List of Hosts, enter it from the Provisioning Work Sheet or Service Order using one of the following procedures:

Enter a Single Host

- a) In the *Property* area, select the *Single Host* radio button
- b) Enter the IP Address or Hostname
- c) Click *Add*
- d) Proceed to Step 3.

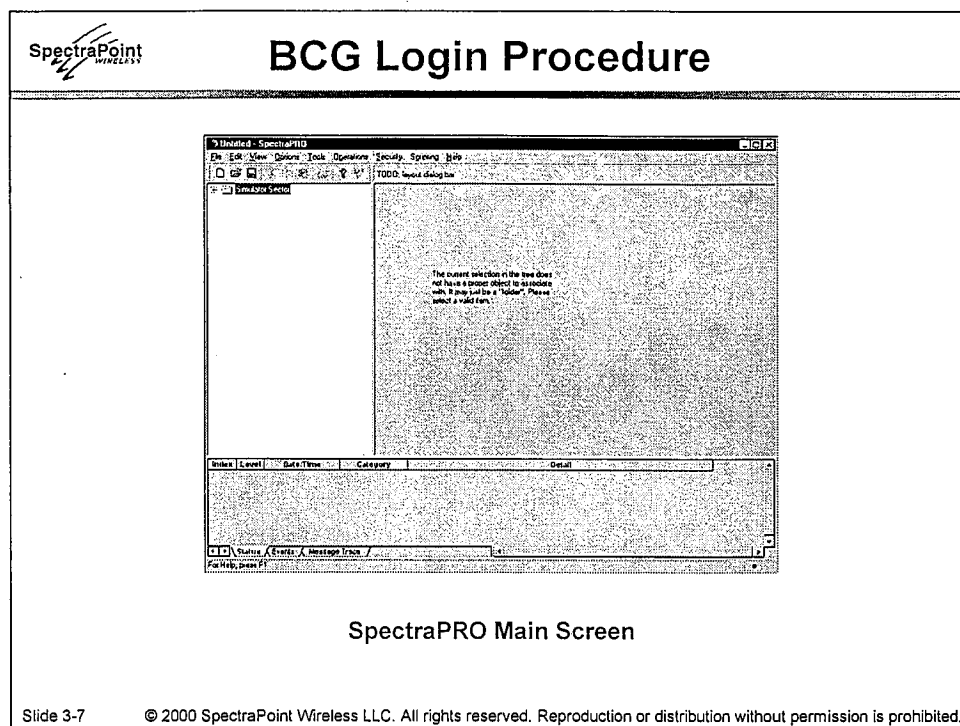
Bringing Up SpectraPRO, continued

Find a Host Using Range of Hosts and Subnet Mask

- a) In the *Property* area, select the *Subnet Mask* or *Range of Hosts* radio button
- b) Enter the IP address of the Subnet Mask or range of IP addresses to search
- c) Click *Add*
- d) Proceed to step 3.

3. Check the selection box of the IP address of the desired Base Channel Group and click *OK*. The SpectraPRO Main Screen appears, as shown in slide 3-7.

This completes the procedure for installing SpectraPRO software on the CID, connecting the CID, and starting SpectraPRO.




BCG Login Procedure

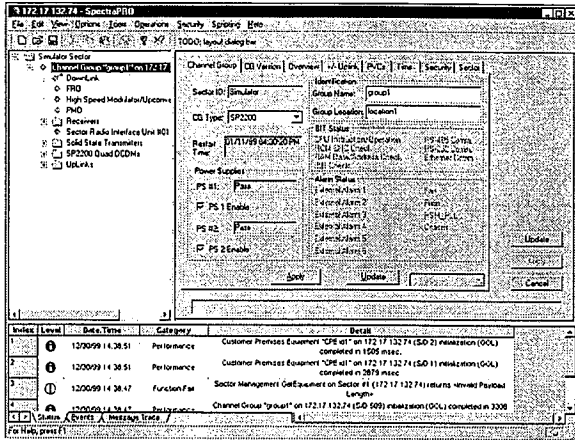
Once the CID is connected to the BCG and SpectraPRO is started, the next step is to log into a BCG. Slide 3-7 shows the SpectraPRO Main screen, the starting point for logging into a BCG.

Steps

1. Click the + symbol next to the desired sector. The Base Channel Group for the sector will appear. **Note:** *If this is the first BCG in a sector, select the + symbol by the unknown sector.*
2. Click on the desired Channel Group to highlight it. The 'Select Connection Type' window (not shown) will appear.
3. Select the tab for the appropriate connection type (Ethernet or RS-232), and enter the required information:
 - Ethernet: User Name, password, and Port Number
 - RS-232: User Name, password, com port, and baud rate
4. Click OK.



BCG Login Procedure



Channel Group Tab

Slide 3-8
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BCG Login Procedure, continued

5. The SpectraPRO screen displays the Channel Group tab for the selected Channel Group, as shown in slide 3-8. The user is now logged in to the Base Channel Group.

Note: The procedure detailed in these steps assumes connection to a "live" 2200 system. The procedure on page 3-9 illustrates the procedure to bring up SpectraPRO in a simulator mode if access to a 2200 system isn't available.

The CID Simulator

SpectraPRO software has the capability of providing simulated Base Channel Group (BCG) functionality without being connected to a live system. This is called the CID Simulator. Shown below is the procedure used to activate the CID Simulator.

Load SpectraPRO on your PC...

- From the CD (during setup), double click the **Set Up** icon (it looks like a small PC monitor with a blue screen).
- In the loading process you will be asked questions. As you satisfy each screen, click the "next" button (this advances to the next screen).
- You'll be asked how you want this loaded, be sure to use the choice for Simulator and full function. *"Full Install including Simulator"*
- Be sure to put this on your PC where you want it. (Example: Windows "Start Button \ Programs \ Accessories is a possible choice.)

Once this is loaded...

- Open the CID Simulator first using the **CID Simulator** icon (a small green icon, looks like a small critter). Wait for the *CidSimulator* window to appear.
- Next, open SpectraPRO using the **SpectraPRO** icon. The "Set up CID Connection" window will appear.
- Check the bullet for *single host*, then click the *Add* action button.
- Highlight your choice in selection field, and click the *OK* button.
- The *Untitled – SpectraPRO* window will appear. At the *Simulation Sector* folder, click on the + sign.
- A *Channel Group* will appear under the sector, click on the small green diamond.
- A small *Password* window will appear. Enter the user name "SuperUser" and password "super", then click the *OK* button.

Using the CID Simulator ...

At this point the simulated Channel Group parameter will be initialized. Once it has loaded, the user can click on *Channel Group* green diamond, and the simulated parts will appear (CCCP, HSM, Transmitters, Receivers, etc.). Each of these will also have a symbol that may be clicked on to open it. **Note:** *Since an actual 2200 is not connected to the CID, some screens will have limited functionality.*



Review Questions

- (1) The CID can connect to the BCG via RS-232 or Ethernet. True or False?
- (2) SpectraPRO can only function connected to a live SP2200 system. True or False?
- (3) The CID supports how many BCG sessions at one time?
- (4) Where is the Ethernet port on the BCG? How about the RS-232 port?

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Review Questions

See slide 3-10 for end-of-section review questions.



Turning Up a Base Station

Section Objective

Given the necessary documentation, upon completion of this section, the student will receive an overview of how to use turn up a 2200 Base Station.

In addition, at the completion of the lab exercise, the student will be able to turn up a SP2200 Base Station.

Slide 4-1

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Turning Up a Base Station

See slide 4-1 for the section objective. This section covers introductory information for provisioning a Base Station.



General Information

- The Operation manual covers provisioning information for the SP2200 equipment using a CID.
- The Operation manual is a section of the SP2200 BCG equipment manual.

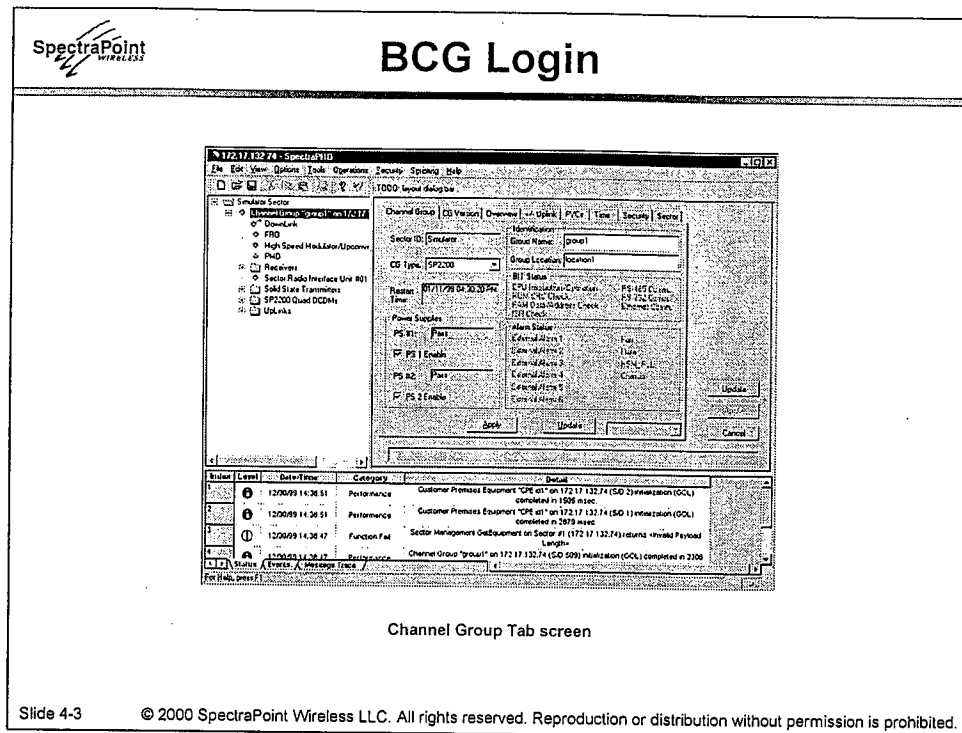
Slide 4-2

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General Information

See slide 4-2 for general information on the Operation manual. **Note:** *A hard copy of the Operation manual may be found in section 6 of this training manual.*

APRIL 24
10:50 AM
6



BCG Login

The first step in performing any of the provisioning tasks is to log into a Base Channel Group (BCG) using a CID running SpectraPRO. The steps involved in logging in using the CID are covered in section 3 ("Getting Started") in this training manual.

Screen 4-3 shows the screen that the user would access (when logged into a BCG) by clicking on the + sign next to a Channel Group. All of the equipment associated with this BCG may be displayed from various screens while logged in.



Base Station Provisioning Tasks

- Setting up BCG components
 - Activating the PMD
 - Activating the FRO
 - Activating the HSM
 - Activating the DCDM
- Activating the SRIU
- Activating the Transmitter(s)
- Activating the Receiver(s)
- Bringing Up the Downlink

Slide 4-4

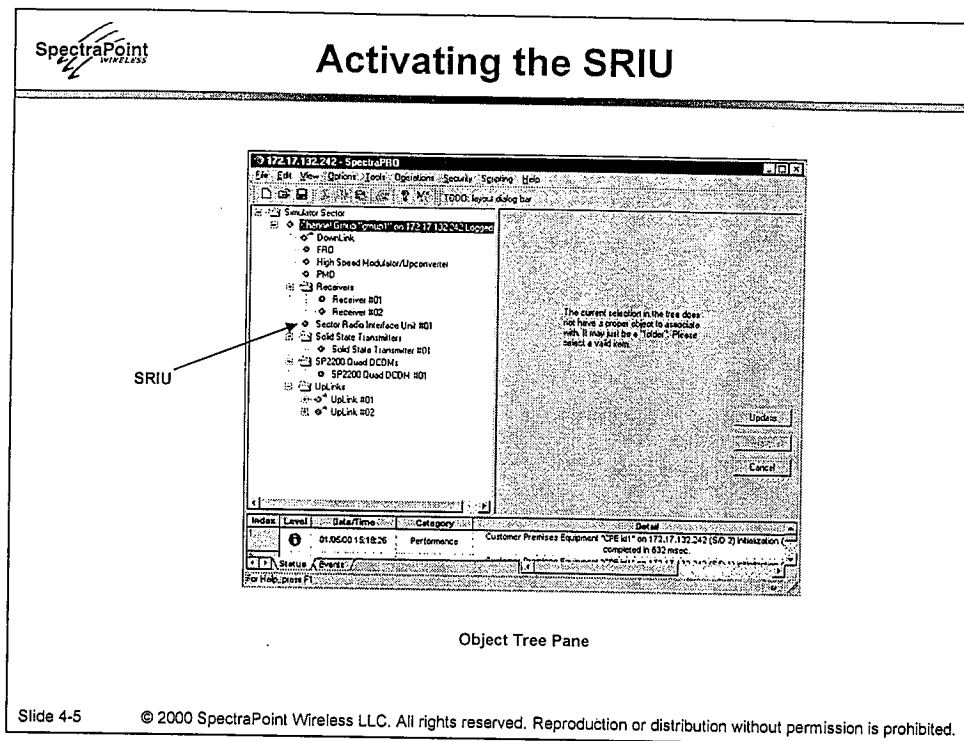
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Base Station Provisioning Tasks

The tasks needed to provision a Base Station are shown in slide 4-4. This list of tasks is from the Operation manual (index page ii) and are normally done at the Base site using configuration parameters from the Site Plan. An explanation of each field and parameters required are illustrated in the manual as well.

Attention: *In an actual deployment the parameters (input) will come from the Site Plan used.*

An example of the steps needed for **Activating the SRIU** are shown on pages 4-5 and 4-6; these steps are taken from the Operation manual. The Operation manual will be used as a guide in completing lab exercises.



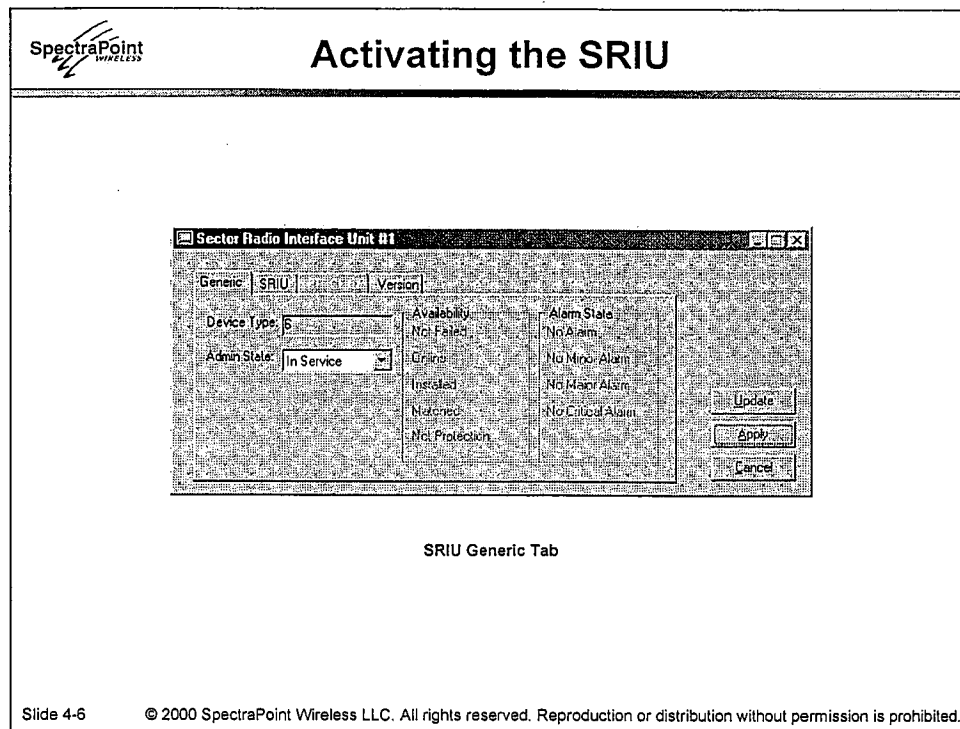
Activating the SRIU

All steps in this task shown are taken from the Operation manual, pages 39-40.

Steps

1. In the Object Tree Pane (slide 4-5), double-click on the Sector Radio Interface Unit (SRIU) #xx to open the SRIU window (see slide 4-6). **Note:** The SRIU #xx will be either #01 or #02 [redundant unit] as per the Site Plan.
 2. Set the Admin state to **In Service**.
 3. Click **Apply**.
- Note:** All other SRIU parameters remain at their default or previously settings unless the Site Plan indicates otherwise.
4. Click **Cancel** to close the window.

This completes the procedure for Activating the SRIU.



Activating the SRIU, continued

See slide 4-6 for the SRIU Generic Tab window.

At this point, the instructor will hand out
Provisioning Lab 1.



Provisioning BCG Services

Section Objective

Given the necessary documentation and equipment, upon completion of this section, the student will be able to discuss and demonstrate how to provision BCG services.

Slide 5-1

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Provisioning BCG Services

See slide 5-1 for the section objective. This section covers the tasks needed to provision Base Channel Group services for subscribers.



General Information

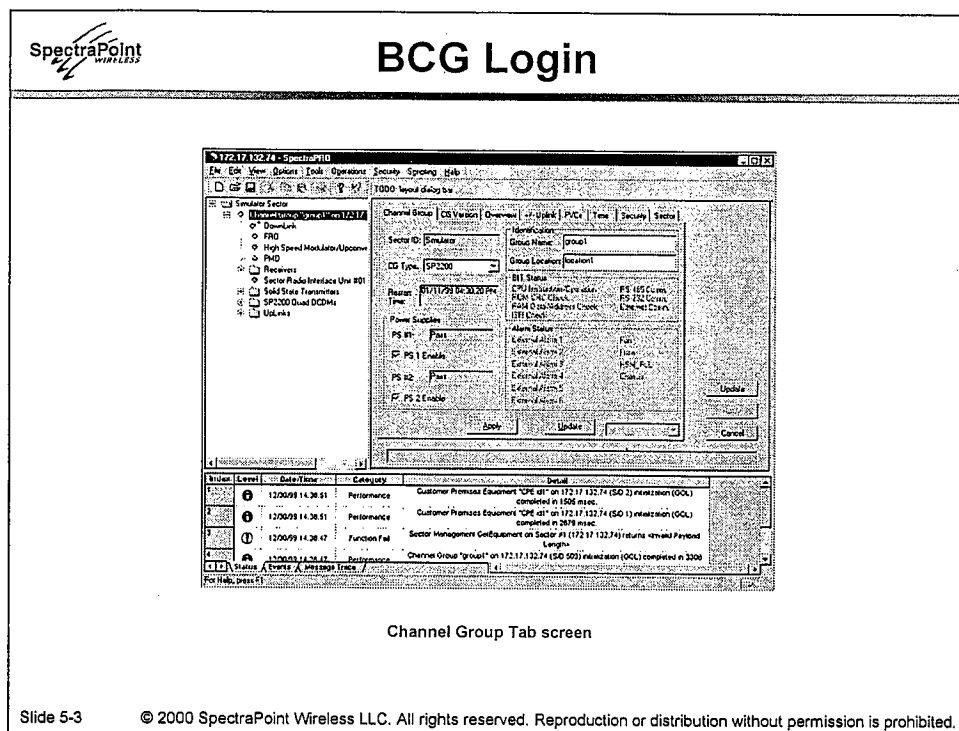
- The Operation manual covers provisioning information for the SP2200 equipment using a CID.
- The Operation manual is a section of the SP2200 BCG equipment manual.

Slide 5-2

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General Information

See slide 5-2 for general information on the Operation manual. **Note:** *A hard copy of the Operation manual may be found in section 6 of this training manual.*



BCG Login

The first step in performing any of the provisioning tasks is to log into a Base Channel Group (BCG) using a CID running SpectraPRO. The steps involved in logging in using the CID are covered in section 3 ("Getting Started") in this manual.

Screen 5-3 shows a screen that the user would access (when logged into a BCG) by clicking on the + sign next to a Channel Group. All of the equipment associated with this BCG may be displayed from various screens while logged in.



Provisioning BCG Services

- Adding an Uplink
- Adding T-1 and E-1 Services
- Provisioning Ethernet Service *
- Changing Services *
- Removing/Replacing Faulty LRIs *

Slide 5-4


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Provisioning BCG Services Tasks

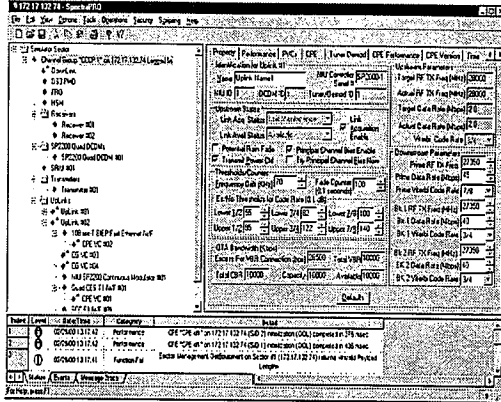
The Base Channel Group (BCG) services provisioning tasks detailed in the Operation manual (index page ii) are shown in slide 5-4; the CID Is used at the Base site with configuration parameters from the Site Plan. These tasks may also be done remotely from the Network Operation Center using a Element Management System (EMS) using the Site Plan parameters for the deployment.

***Note:** *Procedures for provisioning Ethernet service, changing services, and removing/replacing faulty LRIs are undefined in the Operation manual at this time.*

An example of the steps needed for **Adding Service to the T-1 IWF Port** is shown on pages 5-5 and 5-6; these steps are taken from the Operation manual. The Operation manual will be used as a guide in completing all lab exercises.



Adding Service to the T-1 IWF Port



Uplink Window with Property Tab

Slide 5-5
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Activating the SRIU

All steps in this task shown are taken from the Operation manual, pages 67-68.

Steps

1. In the Object Tree pane Uplinks folder (slide 5-5), click the + by the Quad CES T1 IWF to display the CPE Virtual Circuit.
2. Select the CPE Virtual Circuit, then select the +/- CES tab.
3. Set the parameters as indicated in the Site Plan. The PVC parameters in steps 4 - 9 must be set to initiate the Uplink. **Note:** Refer to Table 19 in Operations manual for descriptions of all PVC parameters.
4. Set the service value to **Structured**.
5. Select the time slots indicated in the Site Plan.
6. Click Add CES.

Adding Service to the T1 IWF Port

Steps, continued

7. The CES Property and CES Performance tabs appear in the CPE Virtual Circuit window (behind the property and +/- CES tabs). **Note:** *If they do not appear, repeat steps 3 through 7.*

8. Select the CES Property tab.

9. Set Amin Status to **Up**.

This completes the procedure for Adding Service to the T1 IWF Port.

At this point the instructor will hand out
Provisioning Lab 2.